

Vietnam

*Communicable
Diseases*

COMMUNICABLE DISEASES IN VIET NAM

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COMMUNICABLE DISEASES IN VIET NAM

I propose first to discuss the most prevalent communicable diseases in the indigenous population of South Viet Nam. Then, to briefly mention other diseases in the population, which may be important during military operations. With this background, we will then depict and discuss the experience with communicable diseases of the U. S. Navy and Marine Corps personnel in the I Corps Area, South Viet Nam, during Calendar Year 1966. (Prior to discussing the diseases of importance, I would like to briefly cover some aspects of water supply and sanitation).

WATER SUPPLY: Only about one-third of the population of South Viet Nam is said to have access to a potable water supply. Only the larger cities have public water supply systems. Da Nang, for example, serves untreated water from 3 drilled wells. Most communities obtain water from ponds, streams, canals and shallow wells. Water supply systems are often contaminated because of intermittent operation. Surface water sources are contaminated and these together with ground water sources are often found to have very low pH values and high iron content.

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Most shallow wells are unprotected and many are subject to inundation during the rainy season. In some sections rain water is collected in cisterns and jars and used for drinking. A good rule of thumb is to regard all water outside of U. S. military installations as contaminated and not to be consumed without the addition of iodine tablets.

SEWAGE AND WASTE DISPOSAL: Sewage and waste disposal systems are found only in the larger cities. Available details of these systems are fragmentary and often contradictory. In some towns, raw sewage is discharged directly into the river. In South Viet Nam, human excreta have never been used extensively to fertilize the fields. However, it is possible this practice may have been introduced in recent years. Provision has been made for garbage collection in the larger cities but the standard of operation is not satisfactory. Garbage is placed in open containers, collected in open carts, and transported to dumps. These practices permit the growth of hugh fly and rat populations.

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In rural areas, considerable effort has been made to construct pit privies, but progress is slow. Defecation is usually indiscriminate and it will be some years before disposal facilities in these areas are adequate.

GENERAL: Reports of disease incidence in Viet Nam are likely to be misleading or even erroneous. Western medicine is not the sole system of healing in this country and it is probable that the majority of people receive their medical care from practitioners of traditional
1 SLIDE - PRACTICE
medicine which is based on Chinese practice. In South Viet Nam, there are said to be about 4,600 traditional practitioners of whom 600 are in Saigon. This compares with 900 Western trained physicians in the country as a whole, most of these in the larger cities or the military. Since the traditional practitioner does not report cases of disease, published reports are based on those cases seen by Western physicians. In addition, laboratory facilities are not sufficient for the adequate diagnoses of many diseases and reliance is mainly on clinical diagnosis.

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AA
SLIDE -- DISEASES OF THE CIVILIAN POPULATION, SOUTH VIET NAM, 1966

SLIDES (2) - MALARIA

MALARIA: Malaria remains among the greatest causes of morbidity in South Viet Nam. Eradication programs have resulted in lowering the incidence around Saigon and the coastal areas to the north of Saigon. However, the present war has completely altered the picture. This disease remains a serious public health problem, particularly in the forest and mountain regions.

Malaria has always been hyperendemic in the mountains where large numbers of cases are reported. Plasmodium falciparum causes the majority of the infections in the foothills and highlands whereas P. vivax is responsible for the localized outbreaks in the Mekong River Delta and the coastal plains. A few cases caused by P. malariae may also be found.

ENTERIC INFECTIONS: Acute enteric diseases are very common in

South Viet Nam and reflect the sanitary conditions and hygienic habits

SLIDE (1) - HABITS

of the population. Both bacillary and amebic dysentery occur and there are many cases of so-called common diarrheas. Lack of adequate refrigeration favor the development of food poisoning and salmonella infections

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are commonplace. Typhoid fever occurs but accurate statistics are not available. It is probable that enteric diseases constitute the greatest health hazard for visitors to South Viet Nam.

Bacterial enteropathogens isolated from individual cases of diarrhea and dysentery are generally resistant to most of the antibiotics. This is probably due to widespread self-medication, since antibiotics can be bought without prescription.

SLIDES (2) - TBC

TUBERCULOSIS: Tuberculosis rivals malaria and the enteric diseases as a cause of incapacitation and death. Hospital reports indicate that 30 percent of all hospital admissions are found to have tuberculosis in addition to their primary diagnosis. Pulmonary tuberculosis is the most frequent form but tuberculous meningitis accounts for many cases, particularly in children. Under the auspices of the World Health Organization, a program of vaccination using BCG is underway.

RESPIRATORY ILLNESS: Common respiratory diseases occur quite commonly in South Viet Nam. Influenza appears from time to time in

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epidemic form. Bronchitis and pneumonia are prevalent.

INTESTINAL PARASITISM: Hookworm disease is almost universal among the rural population and the proportion of people infected with round worms, Ascaris lumbricoides and Strongyloides stercoralis, is extremely high. The pork tapeworm, Taenia solium is common. The beef tapeworm, Taenia saginata and the whipworm are less frequently encountered.

NUTRITIONAL DEFICIENCIES: South Viet Nam's available domestic food supply is not adequate to meet the population's needs, but poor nutritional habits are the main contributing factors for nutritional diseases. The diet of the South Viet Nameese provides an average of approximately 2,500 calories daily. However, this is a nutritionally substandard diet which is high in starches and low in proteins. Rice is the major item of the diet and constitutes up to 90% of the food intake in some areas; polished rice usage contributes to the prevalence of beriberi primarily in the south. The diet is low in animal proteins most of which are provided for by fish, pork, and poultry; soybeans provide vegetable protein. Beriberi, ricketts, pellagra, scurvy and

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kwashiorkor are the principle deficiency diseases. Others include:
night blindness, anemia, tropical sprue and goiter, the latter princi-
pally in mountainous areas. (14)
SLIDES - CONTRAST

CHOLERA: Until 1964, only sporadic cases of cholera had occurred in South Viet Nam in recent years. Explosive outbreaks occurred that year, however, and by year's end, 20,000 cases were reported. The disease seems to have abated during 1965 since only 2,036 cases were reported. However, a little over 8,000 cases were noted during 1966. Vigorous immunization campaigns are underway.

PLAGUE: Prior to 1963, plague was confined to a few localized foci. However, since that year the incidence of the disease has risen alarmingly. Incomplete statistics for 1965 indicate 4,000 cases with 225 deaths. There were 2,750 cases reported in 1966. Figures three times those quoted would be more realistic. There is evidence that some strains of P. pestis isolated from humans are resistant to the antibiotics ordinarily used in treatment.

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TRACHOMA: Eye infections are common. Trachoma is widespread in

the northern part of the country but believed to be less prevalent in

the south. Over 37,000 cases were reported in 1961.

SLIDES (7) - MISCELLANEOUS DISEASES.

BB
SLIDE -- DISEASES OF MILITARY IMPORTANCE, EARLY SOUTH VIET NAM, 1966

DENGUE: This disease, transmitted by the Aedes aegypti mosquito,

is endemic in South Viet Nam. A related disease, Thai hemorrhagic

fever, was epidemic in 1964.

FOOD POISONING: There are sanitary regulations governing the operation of markets, restaurants and other eating places in the larger cities. These regulations are not strictly enforced and one should be careful to eat only recently cooked food while it is still hot.

LEPTOSPIROSIS: There were extensive outbreaks among French troops between 1950 and 1954. Most cases occurred in troops who had waded in mud or water during the course of military operations.

CC
SLIDE -- DISEASES OF MILITARY IMPORTANCE, SOUTH VIET NAM, LATE PHASE

FILARIASIS: Cases of this mosquito borne disease are reported each year and its late manifestation, elephantiasis, is occasionally seen.

SLIDE (2) -
FILARIASIS

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INFECTIOUS HEPATITIS: This is one of the major disease hazards experienced by visitors to South Viet Nam. An intensive outbreak occurred among Americans in 1957. It is believed that most Vietnamese acquire immunity to this disease by virtue of experiencing an inapparent or modified attack of infectious hepatitis during childhood. Hepatitis is seldom seen in native adults.

MELIOIDOSIS: This disease, first recognized in 1911, has attracted some attention recently because of articles in the press. It was billed as the "Vietnamese Time Bomb" since, according to the author, symptoms could appear 20 years after infection. This account was, to say the least, premature.

The causative organism, Pseudomonas pseudomallei, is a natural saprophyte found in soil and water and on fruits and vegetables throughout Southeast Asia. Serological surveys suggest widespread infection among man as well as wild and domestic animals. Attempts to determine a natural reservoir have been unsuccessful. The portal of entry most

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likely includes the skin, oral, and respiratory routes. Man-to-man transmission has not been proven.

Melioidosis has been recognized in the following forms: inapparent infection, localized suppurative infection, acute pneumonitis, asymptomatic pulmonary infiltrate, and a septicemic form. The occurrence of inapparent infections is indicated by positive serologic tests for the organism in well individuals from endemic areas in as high as 15% of the individuals tested.

Apparently, the most common presentation is as an acute pulmonary infection which can vary in severity from a mild bronchitis to overwhelming pneumonia.

Several cases have presented asymptomatic pulmonary infiltrates markedly similar to tuberculosis, usually involving the upper lobes and not infrequently cavitary. In these individuals there is usually a history of previous respiratory infection. The acute septicemic form of the disease is distinguished from other septicemias by the high incidence of associated pneumonia, multiple skin abscesses,

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lymphadenitis, marked refractoriness to antibiotics, and a high fatality rate (20-50%).

MENINGITIS: Meningococcal meningitis occurs but is recognized less frequently than the other communicable diseases.

RABIES: Rabies is becoming an increasingly serious disease in South Viet Nam. Although only 66 cases were diagnosed in dogs in 1964, the disease is known to be increasing among ownerless and wild dogs throughout the area. Human rabies occurs frequently but definitive statistics are not available.

U. S. Military personnel participating in rodent collection for plague investigation have been immunized against the disease with duck embryo vaccine.

TREMATODE INFESTATIONS: Paragonimiasis or Oriental Lung Fluke Disease is acquired by ingesting raw or improperly cooked crabs and/or crayfish. Infection with Clonorchis sinensis (the Asiatic liver fluke) is caused by eating raw or undercooked fresh water fish which contain

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cysts of this parasite. Infection with the intestinal fluke, Fasciolopsis buski, also occurs. This is contacted by eating raw aquatic plants, especially the water chestnut.

VENEREAL DISEASES: Gonorrhea is the most frequent one reported, followed by syphilis, chancroid and granuloma inguinale.

8 SLIDES OF DANANG AREA

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Preventive Medicine services to I Corps area personnel are provided by the G-18 and G-19 Components stationed in Da Nang.

The G-18 Component (Preventive Medicine Unit) is composed of 5 Medical Department officers (an epidemiologist, another physician with infectious disease control background, a bacteriologist, a sanitation officer and an entomologist) and 11 enlisted men.

A G-19 Component (Vector Control Unit) consists of one entomologist and approximately 7 enlisted men.

SLIDE A

As can be noted from this slide, the leading cause of in-patient admission among Navy and Marine Corps personnel in Viet Nam are the varied Fevers of Undetermined Origin (FUO's). To gain a further appreciation of the diagnostic problems this entity covers, we would like to present a slide which depicts the eventual diagnosis reached when FUO was listed as the admitting one.

SLIDE - LANTERN A'

Data depicted here are derived from a study conducted by medical officers attached to the U. S. Army's 25th Division while it was operating

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near the Cambodian border in April of 1966. A group of 88 United States servicemen were admitted with FUO and were not treated until a more definite diagnosis was made. The eventual diagnoses are listed here. You will note that a majority of FUO's were still undiagnosed.

SLIDE

B

This slide depicts the type of malaria prevalent among Navy and Marine Corps patients. Excluding slides read as "undetermined species," P. vivax infections account for 11 percent of all cases. This 11 percent incidence of vivax is somewhat higher than the 4 percent noted during 1965 and its exact significance cannot be determined at this time.

Roughly, 80-90 percent of all P. falciparum strains exhibit resistance to the standard chloroquine therapeutic regimen. A significant number of these are further resistant to quinine and recourse must be made to combination drug therapy, employing the two previously mentioned plus daraprim, primaquine, sulfadiazine, DDS, and Fanasil.

Control of malaria encompasses both chemoprophylaxis and environmental measures. A combined tablet of chloroquine-primaquine phosphate is a standard medical supply item. Administration of the tablet once

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weekly while in malarious areas and for 8 weeks thereafter has been particularly successful against the vivax strain of the parasite. This regimen has the added advantage of reducing the risk of toxic reactions from primaquine that occur in certain individuals receiving it daily for a 2-week period.

A disturbing feature of malaria in Southeast Asia is the report of several cases from Guam. Most of these have definitely been proven to have originated on Guam. Whether the parasite was introduced by a human and the indigenous mosquito altered its feeding habits to feed upon man or whether a new and infected species was introduced to Guam by returning servicemen remains to be discovered. U. S. Navy Preventive Medicine Unit No. 6, Pearl Harbor, is presently conducting studies in order to determine more exact control methods.

Environmental Control. Because of breakthroughs in the prophylactic regimen, a prime means of preventing malaria must be through adequate environmental controls. Dispersal of insecticides for control of larval and adult mosquitoes by ground equipment and by helicopter in the

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form of sprays, fogs, and granules are usually effective in secured areas in and near base camps only. Limited helicopter spray missions beyond secured areas have been accomplished, but such operations are hazardous, and results are doubtful. Air Force C-123 cargo aircraft equipped to spray large areas in an efficient manner have seen use in Viet Nam. It is planned to strongly encourage use of this valuable tool in the immediate future, and to supplement C-123 aerial spraying with new spray equipment attachable to Marine Corps attack aircraft as soon as possible.

ENTERIC DISEASE: One of the leading causes of morbidity among military personnel in Viet Nam is enteric disease. It has been estimated that approximately 50 percent of the men develop diarrheal disease within the first 2 months in-country. This is complicated by the fact that many of the etiologic agents have developed resistance to a majority of the chemotherapeutic agents commonly employed.

Approximately 5 percent of the indigenous population suffers from amebic infestation, but this condition has not been a major problem in military personnel. Amebiasis had been grossly overdiagnosed in military personnel at several activities. Most of these cases had shigellosis.

Cholera, although endemic in Viet Nam, has not been a problem.

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During the last 6 months of 1965, 8 outbreaks of diarrheal disease involving approximately 800 men, were reported to the Bureau of Medicine and Surgery. All but 2 outbreaks were due to *Shigella* sp. This relatively large number of cases is a direct reflection of the unsanitary conditions created by the rapid buildup. (12)

SLIDES OF SANITATION

Three outbreaks of gastroenteritis were reported from Viet Nam in 1966 (Jan-Nov). In one, sixty-five individuals were affected by *S. sonnei* transmitted by an infected mess cook. A second, involving 23 individuals, was due to *staph aureus* transmitted via a ham. *S. sonnei* was the agent responsible for the 85 cases of diarrhea in the third outbreak.

Approximately 50 percent of individual sporadic cases that were thoroughly studied were proven to be due to *Shigella* sp. The next slide presents a summary of the laboratory diagnoses. SLIDE C

While experimental oral vaccine for certain types of shigellosis look promising, there is no generally useful individual drug prophylaxis against these conditions. Among combat troops, 100 percent dependence for control must be placed on an adequate program of sanitation and enforcement of personal hygiene measures at all times.

SLIDE (12) - HOW NOT TO
DO IT

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The efficacy of such a program is demonstrated by the decline in reported outbreaks of gastroenteritis in Viet Nam in 1966.

INFECTIOUS HEPATITIS: All Marine Corps personnel and select naval personnel reporting for duty in Southeast Asia are given 5.0 ml (approximately 0.03 ml per pound of body weight) of gamma globulin as protection against infectious hepatitis. The gamma globulin is initially administered at the Continental United States port of embarkation and every 5 months thereafter if the individual remains in an endemic area. During 1966, we have had 64 cases of infectious hepatitis in Navy and Marines serving in Viet Nam. (In comparing incidence rates with our Army colleagues it is noted that they have an infectious hepatitis rate that is roughly 4 times that seen in Navy/Marine Corps personnel. It may be noted that only a minority of Army personnel receive gamma globulin.)

DENGUE: In 1966, 8 suspected cases of dengue fever have occurred in Navy and Marines serving in Viet Nam. It is not anticipated that this disease will become a major problem. Although many of the FUO's may turn out to be dengue.

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RABIES: Roughly 325 animal bites have occurred among shore-based personnel in Viet Nam, in 1966. Due to the prompt administration of Duck Embryo Vaccine, human cases have not occurred.

The Preventive Medicine Unit, G-18 Component Laboratory reports that approximately one-third of all heads submitted in 1966 (mainly dogs) are positive for rabies.

ENCEPHALITIS: Virtually no information is available concerning the occurrence of Japanese B encephalitis in Viet Nam. However, in view of the widespread distribution of mosquito' vectors and serologic evidence of the presence of Japanese B encephalitis, medical personnel are alerted to the possibility of epidemics.

A further breakdown of the 44 "encephalitis" cases listed in a previous slide is presented on the next slide:

ENCEPHALITIS ADMISSIONS, I CORPS, VIET NAM, 1966

TYPE/AGENT	<u>NO. OF CASES</u>
Meningoencephalitis	34
Aseptic Meningitis	8
Japanese B Encephalitis	1
Tuberculous Meningitis	1

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is available at present. Control depends upon environmental measures against arthropod vectors and use of repellents by personnel.

TUBERCULOSIS IN SOUTHEAST ASIA: In 1965, 3 cases of tuberculosis were reported from WESTPAC. These 3 most likely originated in Okinawa. In 1966, 12 cases of tuberculosis originating in South Viet Nam were reported. One of these was a tuberculous meningitis that received life saving treatment aboard the USS REPOSE. Two possible cases which may have originated in Viet Nam have also been reported. (3 have been Navy, the rest U. S. Marine Corps). One was far advanced, 2 moderately advanced, the rest minimal.

To date, none of the cases have been isoniazid resistant.

We are attempting at present to establish a more efficient surveillance program on Marines returning from Viet Nam. A conversion rate is not available at the present time.

VENEREAL DISEASE IN SOUTHEAST ASIA: The most reliable estimates place the incidence of venereal disease in South Viet Nam at about 50 per 1,000 men per year. This is roughly twice the world figure.

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Gonorrhea ranks first, followed by non-gonococcal urethritis, syphilis, and chancroid.

HEAT STRESS: Exact incidence rates are difficult to obtain but U. S. Army statistics for 1965-66 indicate a rate of 34 per 1,000 average strength. Actually, the rate is higher than this since the denominator used includes all troops. Most cases are seen between March and June with April the highest.

IMMERSION FOOT: During a combat operation in the fall of 1965, a significant number of Marine Corps personnel developed what has since been labelled "immersion foot" or "paddy foot." Simply, this represented the pathologic state which occurred after prolonged immersion in water. Cases admitted were moderately severe and required between one and ten days on the sick list before they could return to duty. The picture of the disease was typical: the epidermis was thickened, boggy and white with discolored fluid and the epidermal vitality was decreased to the point where it required little trauma in some cases to produce avulsion of the

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epidermis, particularly in the areas where the skin is thin beneath the toes and the sides and dorsum of the feet.

The problem was referred to the Commission on Cutaneous Diseases of the Armed Forces Epidemiological Board. Studies were conducted on volunteers in the Everglades in Florida where it was shown that high vacuum silicone grease used on test subjects with normal feet offered almost complete protection from the painful effects of this condition.

In summary then, we have attempted to present those diseases which affect the civilian population of Viet Nam, those which are of a potential danger to military operations and have given you a look at our troops' experience in 1966. For a more comprehensive view of this topic we would refer you to one of the handouts: "Health Data Publication on South Viet Nam." Another equally valuable handout is the APHA's "Control of Communicable Diseases in Man."

I would like to wish you success in your endeavors in that country. Should you have any questions concerning preventive medicine and the general

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field of communicable diseases, I would suggest you contact CDR Charles Alexander, MC, USN, who will assume the duties of Officer in Charge of the Preventive Medicine Unit In Da Nang in late July or early August. In addition, the Preventive Medicine Division of BUMED is always appreciative of receiving comments and/or suggestions from the field - please feel free to drop us a personal note (Code 721) should you desire specific information.